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July 31, 2001

BOX PCT
Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

PCT/EP99/09541
- filed 06 December 1999

Re: Application of Alexander **BLEIBLER**
"METHOD FOR PRODUCING A FLAT STRIP"
Our Ref.: 3827.082

Dear Sir:

The following documents and fees are submitted herewith in connection with the above application for the purpose of entering the National stage under 35 U.S.C. §371 and in accordance with Chapter II of the Patent Cooperation Treaty:

- X this express request to immediately begin national examination procedures (35 U.S.C. 371(f)).
- X an executed Declaration and Power of Attorney.
- X a German Language International Application with European Search Report
- X an English (translation of the) International Application.
- __ an English (translation of) Article 19 claim amendments.
- __ English translation of Article 34 amendments (annexes to the IPER) and German language IPER.
- __ an executed Assignment and PTO 1595 form.
- X Two (2) Sheets of Formal Drawings
- X Preliminary Amendment.

09/890516

It is assumed that copies of the International Application, the International Search Report, the International Preliminary Examination Report, and any Articles 19 and 34 amendments as required by §371(c) will be supplied directly by the International Bureau, but if further copies are needed, the undersigned can easily provide them upon request.

The Government filing fee is calculated as follows:

Total claims	23	-	20	=	3	x $18	=	$ 54.00
Independent Claims	4	-	3	=	1	x $80	=	$ 80.00
Base Fee								$860.00*
TOTAL FILING FEE								$994.00

* A copy of the European Search Report is attached.

A check for the statutory filing fee of $994.00 is attached. Please charge or credit any difference or overpayment to Deposit Account No. 16-0877. The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §1.492 which may be required during the entire pendency of the application to said Account.

Priority is claimed from February 2, 1999, based on German Application No. 199 04 185.7.

Respectfully submitted,

PENDORF & CUTLIFF
Attorneys for Applicant

By _____
Stephan A. Pendorf
Registration No. 32,665

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Alexander BLEIBLER

Appln. No.:

Filed: **July 31, 2001**

For: **METHOD FOR PRODUCING A FLAT STRIP**

Attorney Docket No.: **3827.082**

PRELIMINARY AMENDMENT

Attn: **Box PCT**
Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Sir:

Prior to examination of the above-identified application, please amend the application as follows:

IN THE CLAIMS:

Page 8, please delete Claims 1-21; Page 13, delete PCT Substitute Claims 1-3 and add the following new Claims 22-44:

22. A process for production of a flat strip in a continuous process, comprising:

pressing a film (40', 40'') of thermoplastic material against at least one surface of a support fiber web (38) comprised of a plurality of parallel oriented reinforcing fibers with transverse fibers interwoven,

causing the thermoplastic material of the thermoplastic film (40', 40'') to melt under the influence of heat so that

the support fiber web (38) is impregnated with the melt of the thermoplastic material under the influence of pressure, wherein the the support fiber web (38) and the at least one thermoplastic film (40', 40'') are pressed and heated in a pass-through process, and

subsequently cooling, under maintenance of pressure, the thermoplastic material in the pass-through process with formation of hardened binder matrix.

23. A process according to Claim 22, wherein the support fiber web (38) and the at least one thermoplastic film (40', 40'') are drawn from supply rollers (32, 34', 34'') and are pressed, heated and cooled along the pass-through segment (28).

24. A process according to Claim 22, wherein the support fiber web (38) is conveyed to the pass-through segment (28) in the longitudinal direction of the reinforcing fibers.

25. A process according to Claim 22, wherein a protective film (42', 42'') is supplementally provided on the side of the thermoplastic film (40', 40'') facing away from the support fiber web to form a composite, wherein this composite is supplied to the support fiber web, and wherein during the heating and cooling process under the influence of pressure force the protective film is surface-bonded to the flat strip.

26. Process as in claim 25, wherein said surface-bonding of said protective film to said flat strip is releasable.

27. A process according to Claim 25, wherein the protective film (42', 42'') is drawn from a supply roll (36', 36'') and conveyed to the common pass through segment (28).

28. A process according to Claim 22, wherein flat strip (30) is wound upon at least one material roll (48) subsequent to the pass-through segment (28).

29. A process according to Claim 22, wherein subsequent to the pass-through segment (28) the flat strip (30) is subdivided into strips aligned parallel to the pass-through direction.

30. A process according to Claim 22, wherein the flat strip (30) subsequent to the pass through segment (28) is stored with formation of flat strip lamellas or stacks.

31. A process according to Claim 22, wherein the support fiber web (38), the at least one thermoplastic film (40' 40'') and the optional protective film (42', 42'') are pressed, heated and cooled between two rotating press bands (24) of a double band press (20).

32. A process according to Claim 22, wherein multiple individual flat strips are surface bonded with each other under the influence of pressure and heat for increasing the wall thickness.

33. A process for production of a flat strip, comprising:

permeating a support fiber web (38) comprised of a plurality of parallel oriented reinforcing fibers with

interwoven transverse fibers in a suspension (52) of finely divided thermoplastic plastic particles,

drying the thus permeated support fiber web under the influence of heat,

melting the thermoplastic material remaining upon the dried support fiber web under the influence of heat, and

subsequently cooling the thermoplastic material again with formation of solidified binder matrix.

34. A process as in claim 33, wherein said suspension is an aqueous suspension.

35. A process according to Claim 33, wherein said support fiber web (38) is drawn from a roll and is passed through the suspension (52).

36. A process according to Claim 33, wherein the flat strip (30) is pressed or calendared prior to, during or subsequent to the hardening of the binder matrix.

37. A process according to Claim 33, wherein multiple individual flat strips are surface bonded with each other under the influence of pressure and heat for increasing the wall thickness.

38. A flat strip lamella, comprised of a plurality of parallel oriented reinforcing fibers which are interwoven with transverse fibers for forming a support fiber web (38) and which together with the transverse fibers are embedded in a binder matrix of thermoplastic material, wherein the binder matrix permeates the free interstitial spaces of the support fiber web (38).

39. A flat strip lamella according to Claim 38, wherein the support fiber web embedded in the binder matrix is provided on at least one broad surface with a preferably releaseable protective film.

40. Flat strip lamella according to Claim 39, wherein the protective film is comprised of a duroplastic, such as polyester, or of an elastomer, such as silicon-rubber or of silicon treated paper.

41. A flat strip lamella according to Claim 38, wherein said thermoplastic material is selected from the group consisting of polyolefins, vinyl polymers, polyamides, polyacetals, polycarbonates, polyurethanes and ionomers.

42. A flat strip lamella according to Claim 38, wherein the reinforcing fibers consist of or include carbon fibers.

43. A flat strip lamella according to Claim 38, wherein the reinforcing fibers comprise or contain aramid fibers, glass fibers or polypropylene fibers.

44. A method for reinforcing a load bearing or load transmitting structure, the method comprising applying to the surface of said structure a flat strip lamella produced in accordance with claim 22.

<u>REMARKS</u>

The claims have been amended in order to eliminate multiple dependent claims and claims improperly depending from multiple

dependent claims, and to otherwise conform the claims to U.S. practice. Care has been taken to ensure that no new matter is added to the text.

Entry and favorable consideration prior to consideration are respectfully requested.

Respectfully submitted,

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Stephan A. Pendorf
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Date: **July 31, 2001**

EXPRESS MAIL CERTIFICATE

"EXPRESS MAIL" MAILING LABEL NUMBER: **EL435909486US**

DATE OF DEPOSIT: **July 31, 2001**

I HEREBY CERTIFY that the foregoing cover letter including the German Language International Application with European Search Report, English Language translation, Declaration and Power of Attorney, Preliminary Amendment, two (2) sheets of formal drawings, payment of fee, and a stamped receipt post card are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. §1.10 on the date indicated and is addressed: **ATTN: Box PCT, Commissioner of Patents and Trademarks, Washington, D.C. 20231.**

The Commissioner is hereby authorized to charge any additional fees which may be required at any time during the prosecution of this application without specific authorization, or credit any overpayment, to Deposit Account Number 16-0877.

Sherri A. Campbell

METHOD FOR PRODUCING A FLAT STRIP

BACKGROUND OF THE INVENTION

Field of the Invention

The invention relates to a method for producing a flat strip in which a reinforcing fiber fabric, comprised of a multitude of parallel aligned reinforcing fibers interwoven with cross fibers, is embedded in a binder matrix made of synthetic material.

Description of the Related Art

Reinforcing strips of this type are known for example from WO96/21785. These reinforcing strips are employed on longitudinally extending and/or planar building components. The reinforcing lamella comprising a duroplastic (thermosetting) plastic as binder matrix, in particular an epoxy resin, do not allow for formation of bends with small bend radius, so that it is not possible to herewith form angular reinforcements extending over a construction component edge. Angled reinforcements are needed for example for a steel reinforced concrete beam or a steel reinforced concrete T-beam to reinforce the area between the pressure and tensile zone and to avoid thrust and transverse tears.

The invention is based upon the task of developing a process for manufacture of flat-strip bands, which makes possible a particularly rational manufacture in a continuous process.

SUMMARY OF THE INVENTION

The inventive solution is based upon the concept, that a particularly rational manufacturing method is possible in the case that a thermoplastic synthetic material is used as binder matrix.

A first alternative solution envisions that a film of thermoplastic material is pressed against at least one broad side of the support fiber web, that the thermoplastic material of the film is caused to melt under the influence of heat, that the support fiber material is impregnated with the melt of the thermoplastic material under the influence of pressure and that the thermoplastic material is subsequently cooled while maintaining pressure to form the hardened binder matrix.

In accordance with a preferred embodiment of the invention the support fiber web and the at least one thermoplastic film are pressed, heated and cooled in one continuous process. The support fiber web and the at least one thermoplastic film are thereby preferably drawn off of supply rolls and pressed, heated and cooled along a pass-through segment. Herein the support fiber web is preferably conveyed to the pass-through segment in the longitudinal direction of the support fibers.

A further advantageous embodiment of the invention envisions that a protective film is supplementally supplied on the free outer side of the thermoplastic film, that this is conveyed to the support fiber tissue, and during the heating and cooling process is surfaced bonded therewith, preferably releaseably, under the influence of the pressure force. The protective film can likewise be drawn from a supply roll and, together with the thermoplastic film and the support fiber web, be conveyed to the pass-through segment. A preferred embodiment of the invention envisions that the support fiber web, the at least one thermoplastic film and the, in certain cases present, at least one protective film are pressed, heated and cooled between the revolving bands or belts of a double band press. The protective film comprised preferably of a non-melting plastic material ensures that the press apparatus, during the heating process, does not come into contact with the melting thermoplastic

material and become soiled therewith. The protective film can be pulled off from the finished flat strip after the pass-through segment, and be rolled onto a separate film roll, for example for reuse. On the other hand, it is possible to leave the protective foil on the finished flat strip and to pull it off at the point of use.

The flat strip can be rolled onto a material roll after the pass-through segment. It is also possible to separate the flat strip into narrower strips with predetermined breadths parallel to the direction of passage, after the pass-through segment, and in certain cases to roll these narrower strips upon a material roll. It is further possible to store the, in certain cases stripwise-separated flat strips, with formation of flat strip lamella or stack in segments of predetermined length.

The above-described first inventive variant has the advantage, that therewith any of various thicknesses of flat strips can be produced. The thermoplastic film need merely be adjusted in its wall thickness to conform to the thickness - and therewith the receptivity - of the reinforcing fiber web.

A further inventive variant, which is above all suitable for manufacture of thin flat strip bands, envisions that the support fiber web is soaked with a preferably aqueous suspension of finely distributed thermoplastic synthetic material particles, that the soaked support fiber web is subsequently dried under the influence of heat, that the thermoplastic material deposited upon the support fiber web is then caused to melt under the influence of heat and then cooled again with formation of solidified binder matrix. Advantageously, the support fiber web drawn off of the roll is conveyed through a suspension mixture and subsequently through a vaporization segment, a melting segment and a cooling segment. The support fiber web can in addition be pressed or

calendared prior to, during or after the solidification of the binder matrix. The flat bands produced in this manner can be surface bonded into multiple layers under the influence of pressure and heat.

The flat strips produced in accordance with the inventive process exhibit a plurality of parallel oriented reinforcing fibers, which could be interwoven with transverse fibers for formation of a support fiber web, and which together with the transverse fibers are embedded in a binder matrix of thermoplastic material, wherein the binder matrix penetrates the free interstitial spaces of the support fiber web. The support fiber web embedded in the binder matrix can have a releaseable protective film provided on at least one broad side.

For the formation of the binder matrix a thermoplastic material could be selected from the group consisting of polyolefins, vinyl polymers, polyamides, polyacetals, polycarbonates, polyurethanes and ionomers. The reinforcing fibers preferably contain carbon fibers or are carbon fibers. The support fibers and the transverse fibers can also be formed of, or contain, aramid fibers, glass fibers or polypropylene fibers.

As protective films one could consider for example a duroplastic synthetic material such as a polyester resin or an elastomeric plastic such as silicon-rubber or silicon paper.

BRIEF DESCRIPTION OF THE DRAWING

In the following the invention will be described in greater detail on the basis of the embodiment schematically represented in the figures. There is shown:

Fig. 1 a flow schematic for the manufacture of a flat strip lamella with utilization of a double band press;

Fig. 2 a flow schematic for the manufacture of a flat strip lamella using a suspension mixture.

DETAILED DESCRIPTION OF THE INVENTION

The process described in the following is designed for manufacture of flat strips and flat strip lamellas or laminates, which exhibit a composite structure of a plurality of flexible or bendable support fibers oriented parallel to each other, a certain proportion of transverse fibers interwoven perpendicular to the support fibers, and a stabilizing binder matrix of a thermoplastic material. The thermoplastic binder matrix ensures that the flat strip is relatively stiff at the temperature of use and is plastically deformable upon heating to a temperature above the glass transition point.

The arrangement schematically represented in Fig. 1 for manufacture of this type of flat strip includes a double band press 20 with two press bands 24 running in opposite directions over direction-changing rollers 22, of which the belt sides 26 facing each other define a pass-through segment 28 for a continuous strip 30 to be processed in the below described manner, and which band press presses against the broad surfaces of the continuous strip. For forming the continuous strip 30 a support fiber web 38, two thermoplastic films 40', 40'' and two protective films 42', 42'' are drawn off of five supply rolls 32, 34', 34'', 36', 36'' and conveyed, with their broad surfaces contacting, into the inlet side of the direction-changing rollers 22 of the double band press 20 in the shown manner. The continuous strip 30 passes along the pass-through segment 28 with maintenance of the pressure force of the press bands 26, passing first through a heating segment 44, along which the thermoplastic

material of the thermoplastic films **40'**, **40''** is caused to melt and pressed into the free spaces of the support fiber web. The protective films **42'**, **42''** ensure that the press bands **26** are not contaminated by the melting thermoplastic material. In the further course of the pass-through segment **28** the continuous strip passes through a cooling segment **46**, in which the thermoplastic material is caused to solidify with formation of a binder matrix within the support fiber web. Subsequent to the double band press **20** the flat strip produced in the manner can, as shown, be wound upon a roll **48**. Alternatively thereto the flat strip can also be separated into strips parallel to the pass through direction, and be rolled onto different rolls or, with formation of flat strip lamellas, be stacked or stored. With the described process it is possible to produce flat strips of various thicknesses as required. In this case it need merely be observed, that the thickness of the thermoplastic films **40'**, **40''** and therewith the amount of the thermoplastic material available for use, conforms to the thickness of the support fiber web **38** - and therewith the receiving volume in the empty spaces of the web.

The arrangement shown in schematic manner in Fig. 2 is, in contrast thereto, only designed for and suitable for manufacture of relatively thin-walled flat strips. The support fiber web **38** drawn from the supply roll **32** is, in this case, drawn over direction changing rollers **50** through a suspension mixture **52**, which is comprised of a preferably aqueous suspension of finely divided thermoplastic plastic particles. The support fiber web **38** is soaked in the mixture **52** of the aqueous thermoplastic suspension and is conveyed as a continuous strip **30** along the pass-through segment **54**, first to a vaporization station **56** in

which the water is vaporized under the influence of heat 58 in the direction of the arrows 60 out of the continuous strip 30. Subsequently, the continuous strip 30 passes through the heating segment 62, in which the thermoplastic particles retained in the support fiber band are caused to melt. In the subsequent cooling segment the molten thermoplastic material is caused to solidify to form the binder matrix. In the roller press (calendar) 66 the continuous strip receives its final thickness and is then wound upon a material roll 48. It is also possible in this case to divide the continuous strip, subsequent to the press 66, parallel to the pass-through direction 68, after which it is either wound or stored as flat strip stacks or lamellas.

In summary the following is concluded: The invention relates to a method for producing a flat strip in which a reinforcing fiber fabric, comprised of a multitude of parallel aligned reinforcing fibers that are interwoven with cross-fibers, is embedded in a binder matrix made of synthetic material. According to the invention, the reinforcing fiber fabric 38 is stiffened using a binder matrix made of thermoplastic material and is sealed against liquid penetration. In order to form the binder matrix, the reinforcing fiber fabric 38 can be pressed together with a film 40', 40'' made of thermoplastic material, heated and cooled again. In an alternative embodiment, the reinforcing fiber fabric 38 is firstly impregnated with a preferably aqueous thermoplastic suspension 52, is subsequently heated while evaporating the water and melting the thermoplastic material, and is cooled again to form the solidified binder matrix.

WHAT IS CLAIMED IS:

1. Process for production of a flat strip, wherein a support fiber web comprised of a plurality of parallel oriented reinforcing fibers with transverse fibers interwoven is embedded in a plastic binder matrix, thereby characterized, that a film (40', 40'') of thermoplastic material is pressed against at least one broad surface of the support fiber web (38), that the thermoplastic material of the thermoplastic film (40', 40'') is caused to melt under the influence of heat, that the support fiber web (38) is impregnated with the melt of the thermoplastic material under the influence of pressure and that subsequently under maintenance of the pressure force the thermoplastic material is cooled with formation of hardened binder matrix.

2. Process according to Claim 1, thereby characterized, that the support fiber web (38) and the at least one thermoplastic film (40', 40'') are pressed, heated and cooled in a pass-through process.

3. Process according to Claim 1 or 2, thereby characterized, that the support fiber web (38) and the at least one thermoplastic film (40', 40'') are drawn from supply rollers (32, 34', 34'') and are pressed, heated and cooled along a pass-through segment (28).

4. Process according to one of Claims 1 through 3, thereby characterized, that the support fiber web (38) is conveyed to the pass-through segment (28) in the longitudinal direction of the reinforcing fibers.

5. Process according to one of Claims 1 through 4, thereby characterized, that a protective film (42', 42'') is

supplementally provided on the side of the thermoplastic film (40', 40'') facing away from the support fiber web, that these are supplied to the support fiber web, and that during the heating and cooling process under the influence of pressure force the protective film is surface-bonded to the flat strip, preferably releasably.

6. Process according to Claim 5, thereby characterized, that the protective film (42', 42'') is drawn from a supply roll (36', 36'') and conveyed to the common pass through segment (28).

7. Process according to one of Claims 1 through 6, thereby characterized, that flat strip (30) is wound upon at least one material roll (48) subsequent to the pass-through segment (28).

8. Process according to one of Claims 1 through 7, thereby characterized, that subsequent to the pass through segment (28) the flat strip (30) is subdivided into strips aligned parallel to the pass-through direction.

9. Process according to one of Claims 1 through 8, thereby characterized, that the flat strip (30) subsequent to the pass through segment (28) is stored with formation of flat strip lamellas or stacks.

10. Process according to one of Claims 1 through 9, thereby characterized, that the support fiber web (38), the at least one thermoplastic film (40' 40'') and the optional protective film (42', 42'') are pressed, heated and cooled between two rotating press bands (24) of a double band press (20).

11. Process for production of a flat strip, wherein a support fiber web comprised of a plurality of parallel oriented reinforcing fibers with interwoven transverse fibers is embedded in a binder matrix of plastic, thereby characterized, that the support fiber web (38) is permeated with a preferably aqueous suspension (52) of finely divided thermoplastic plastic particles, that the thus permeated support fiber web is dried under the influence of heat, that the thermoplastic material remaining upon the dried support fiber web is caused to melt under the influence of heat and subsequently cooled again with formation of solidified binder matrix.

12. Process according to Claim 11, thereby characterized, that a support fiber web (38) drawn from a roll is passed through a suspension mixture (52).

13. Process according to Claim 11 or 12, thereby characterized, that the flat strip (30) is pressed or calendared prior to, during or subsequent to the hardening of the binder matrix.

14. Process according to one of Claims 1 through 13, thereby characterized, that multiple individual flat strips are surface bonded with each other under the influence of pressure and heat for increasing the wall thickness.

15. Flat strip, comprised of a plurality of parallel oriented reinforcing fibers which are interwoven with transverse fibers for forming a support fiber web (38) and which together with the transverse fibers are embedded in a binder matrix of thermoplastic material, wherein the binder matrix permeates the free interstitial spaces of the support fiber web (38).

16. Flat strip lamella according to Claim 15, thereby characterized, that the support fiber web embedded in the binder matrix is provided on at least one broad surface with a preferably releaseable protective film.

17. Flat strip lamella according to Claim 15 or 16, thereby characterized, that a thermoplastic material is selected from the group consisting of polyolefins, vinyl polymers, polyamides, polyacetals, polycarbonates, polyurethanes and ionomers.

18. Flat strip lamella according to one of Claims 15 through 17, thereby characterized, that the reinforcing fibers consist of or include carbon fibers.

19. Flat strip lamella according to one of Claims 15 through 18, thereby characterized, that the reinforcing fibers comprise or contain aramid fibers, glass fibers or polypropylene fibers.

20. Flat strip lamella according to one of Claims 16 through 19, thereby characterized, that the protective film is comprised of a duroplastic, such as polyester, or of an elastomer, such as silicon-rubber or of silicon treated paper.

21. Use of the process according to one of Claims 1 through 14, for manufacture of flat strip lamella for reinforcing of load bearing or load transmitting construction components preferably of cement, mortar, plastic or wood.

ABSTRACT

The invention relates to a method for producing a flat strip in which a supporting fiber fabric comprised of a multitude of parallel aligned reinforcing fibers interwoven with transverse fibers is embedded in a binder matrix made of plastic. According to the invention, the supporting fiber fabric (38) is stiffened using a binder matrix made of thermoplastic material and is sealed against liquid penetration. In order to form the binder matrix, the supporting fiber fabric (38) can be pressed together with a film (40', 40'') made of thermoplastic material, heated and cooled again. In an alternative embodiment, the supporting fiber fabric (38) is firstly impregnated with a preferably aqueous thermoplastic suspension (52) and is subsequently heated while vaporizing the water and melting the thermoplastic material and is cooled again while forming the solidified binder matrix.

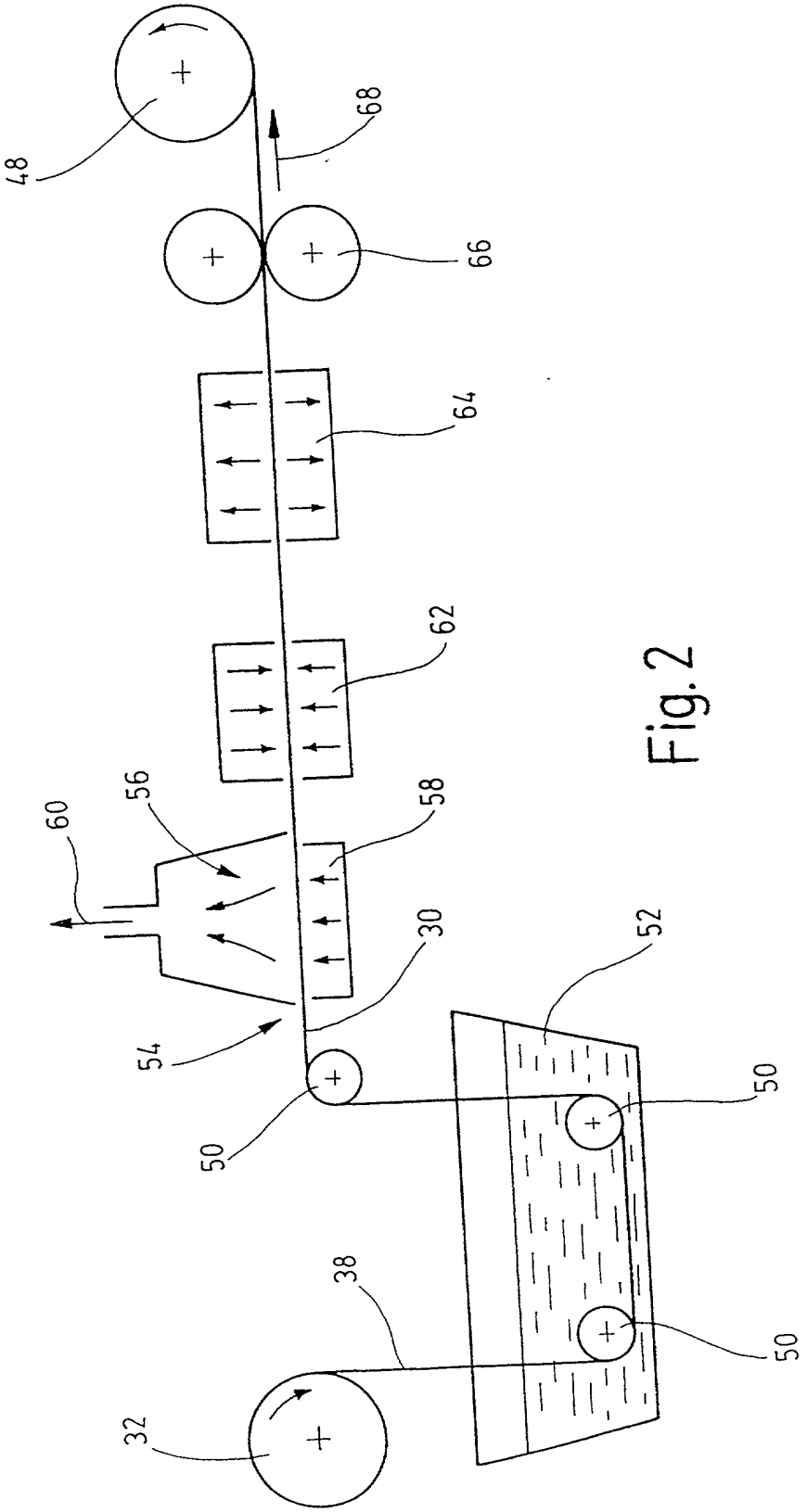

Fig. 2

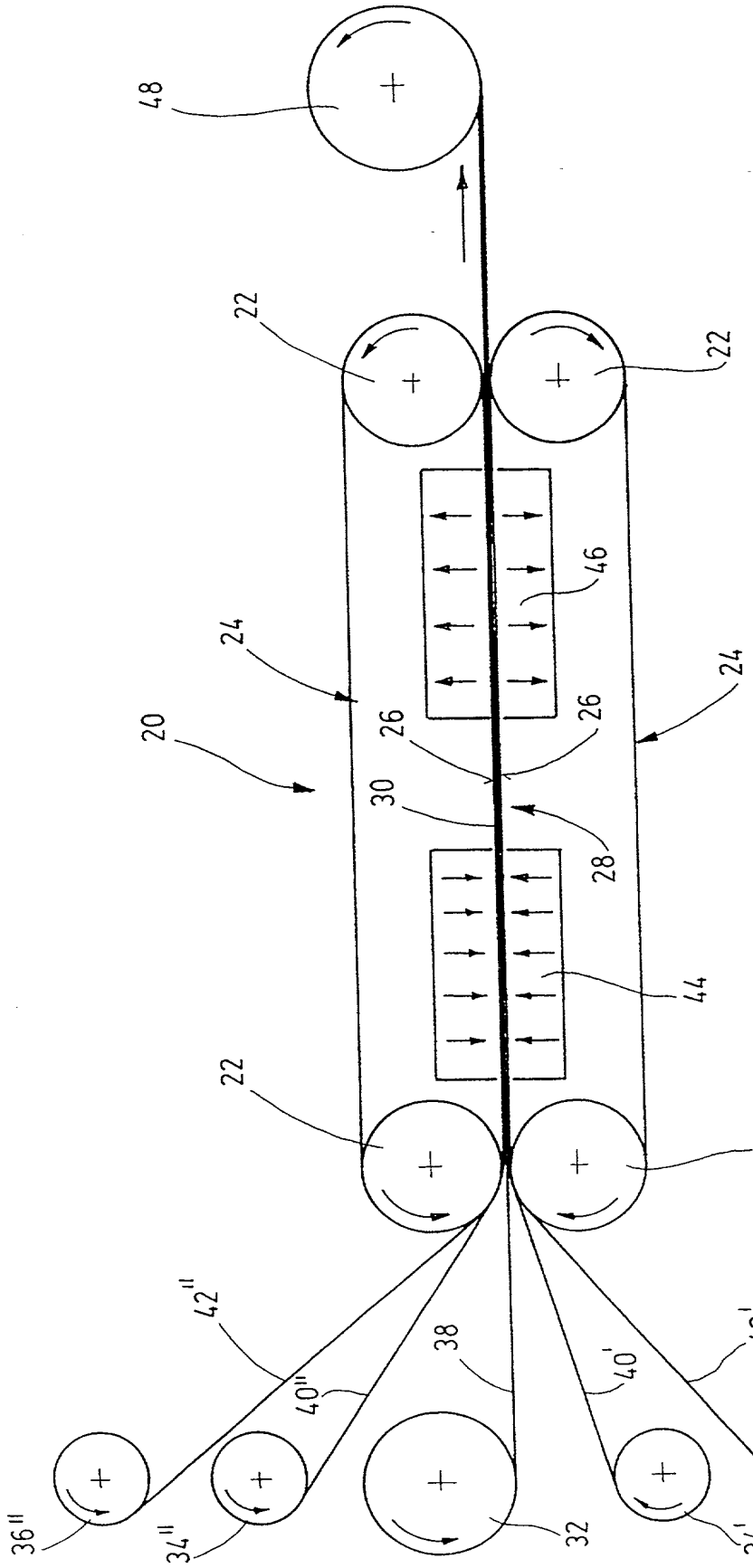

Fig.1

A53180 US

SOLE/JOINT
ATTY DOCK:

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name: that I verily believe I am the original, first and sole inventor (if only one name is listed below) or a joint inventor (if plural names are listed below) of the subject matter claimed and for which a patent is sought in the application entitled: METHOD FOR PRODUCING A FLAT STRIP

which application is:
✓ the attached application
(for original application)

___ Based on Application No. _____
filed _____, and amended on _____.
(for declaration not accompanying application)

that I have reviewed and understand the contents of the specification of the above-identified application, including the claims, as amended by any amendment referred to above; that I acknowledge the duty to disclose to the Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56, that I hereby claim foreign priority benefits under Title 35, United States Code § 119, § 172 or § 365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified on said list any foreign application for patent or inventor's certificate on this invention having a filing date before that of the application on which priority is claimed:

Application No.	Country	Filing Date	Priority Claimed (yes or no)
199 04 185.7	Germany	February 2, 1999	yes

I hereby claim the benefit of Title 35, United States Code §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in a listed prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge my duty to disclose any material information under 37 C.F.R. § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application No.	Filing Date	Status (patented, pending, abandoned)

I hereby appoint Stephan A. Pendorf, Reg. No. 32,665 and Yaté K. Cutliff, Reg. No. 40,577, my attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and request that all correspondence about the application be addressed to Stephan A. Pendorf at Pendorf & Cutliff, P.O. Box 20445, Tampa, FL 33622-0445.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

100

Date 26. June 01

First Inventor Alexander (First Name) (Middle Initial) BLEIBLER (Last Name)

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I HEREBY CERTIFY THAT THIS PAPER IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE "EXPRESS MAIL POST OFFICE TO ADDRESSEE" SERVICE UNDER 37 CFR. 1.10 IN AN ENVELOPE ADDRESSED TO: THE COMMISSIONER OF PATENTS AND TRADEMARKS, WASHINGTON, D.C. 20231, ON THIS DATE. THE COMMISSIONER IS HEREBY AUTHORIZED TO CHARGE ANY FEES ARISING HEREFROM AT ANY TIME TO DEPOSIT ACCOUNT 16-0877.

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